

REMARKS

Claims 1, 2, 5, 8 and 10 are pending in this application.

I. Claim Rejections Under 35 U.S.C. § 103

The Examiner rejects claims 1, 2, 5, 8 and 10 under 35 U.S.C. § 103(a) as being unpatentable over DeProspero (U.S. 3,565,869) combined with Yamane et al. (US 2003/0125431) and further in view of Terado et al. (U.S. 6,528,617). Applicants respectfully traverse the rejection.

In the process of claim 1, an aliphatic polyester comprising principally polyglycolide (PGA), after solid-phase polymerization, is pelletized with a thermal stabilizer, and then heated in its pelletized solid state by contacting it with a flowing heated dry gas under normal pressure, thereby reducing the residual cyclic ester (i.e., glycolide) content to less than 0.2 wt. %.

The Examiner admits that DeProspero fails to disclose a step of adding a heat stabilizer during pelletizing of PGA (after solid-phase polymerization), and the additional step of heating under normal pressure (see Office Action, page 3, lines 9-11). However, the Examiner asserts that paragraph [0021] of Yamane et al. teaches the combination of adding a thermal stabilizer and applying a heat history to PGA provides a PGA with modified thermal properties and improved melt stabilities. Accordingly, the Examiner concludes that it would have been obvious to add a heat stabilizer to PGA in view of Yamanet et al. in order to increase the thermal stability of the PGA obtained by the process of DeProspero (see Office Action, page 3, lines 15-22).

Moreover, the Examiner asserts that Terado et al. teach solid phase polymerization of aliphatic polyester with an additional heat treatment under flowing gas at normal pressure in order to minimize the residual monomer content to below 1000 ppm. Thus, the Examiner asserts that it would have been obvious to “add additional step of heat treatment at flow of gas at normal pressure per teaching of Terado in order to decrease residual cyclic ester below 1000 ppm in process disclosed by DeProspero combined with Yamane (see col. 2, lines 50-60, col. 3, lines 35-65 and Examples of Terado et al., and page 4, lines 3-10 of the Official Action). Applicants respectfully disagree.

First, the process of DeProspero already achieves a residual glycolide content of less than 0.2% (see col. 3, lines 34-44). Therefore, the reference provides no reason or rationale for a person of ordinary skill in the art to add an additional heat treatment to the PGA product in order to obtain a residual glycolide content of less than 0.2 %.

Second, paragraph [0021] of Yamane et al. teaches the application of heat history to PGA within a temperature range “higher than the melting point T_m thereof, but not higher than ($T_m+100\text{ }^{\circ}\text{C}$)”. As a result, the reference teaches the heat treatment to PGA that is in a **molten state**. On the other hand, claim 1 recites “then contacting the **pelletized** aliphatic polyester with a flowing heated dry gas under normal pressure”, and thus the heat treatment in the process of claim 1 is applied to a PGA that is in a pelletized **solid state**.

Third, Terado et al. states “However, in the aliphatic polyester of the present invention, the content of lactide is **1000 ppm or less** [i.e., less than 0.1%] at the time before the heat treatment, and therefore the improvement of thermal stability resulted in by the heat treatment according to the present invention is not achieved by removal of lactide” (see col. 2, lines 39-44). In fact, however, the reference further teaches a post-treatment of an aliphatic polyester obtained after solid phase polymerization in the presence of a volatile catalyst, such as an organic sulfonic acid, by a solid-state heat treatment under a flowing gas to provide improved thermal stability by removal of the volatile organic catalyst (see col. 3, lines 44-57, and Example 1). Example 1 of the reference demonstrates the reduction of an organic sulfonic acid content from 180 ppm to 90 ppm for providing an increase in retentiveness of molecular weight in pressing of from 72% to 93% (see Production Example 1 at col. 12, lines 28-30, and Example 1 at col. 14, lines 36-38).

Therefore, there would have been no reason or rationale to apply the heat treatment of Terado et al. to the PGA of DeProspero, **already having a low glycolide content of less than 0.2 %**, to reduce the residual cyclic ester content to less than 0.2 wt.%, as in the presently claimed process.

Accordingly, the process of claim 1, wherein an aliphatic polyester principally comprising polyglycolide (PGA), after solid-phase polymerization, is pelletized with a thermal stabilizer, and then heated in its pelletized solid state by contacting it with a flowing heated dry gas under normal pressure, thereby reducing the residual cyclic ester (i.e., glycolide) content to less than 0.2 wt.%, would not have been obvious over the combination of DeProspero, Yamane et al. and Terado et al.

Therefore, claim 1 would not have been obvious over the references.

Claims 2, 5, 8 and 10 depend from claim 1, and thus also would not have been obvious over the references.

II. Conclusion

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the foregoing remarks, it is submitted that the rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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